

ROCKPORT RESERVOIR



Introduction

Rockport Lake, also called Wanship Reservoir, is a large reservoir on the Weber River midway between Kamas and Coalville. It is easily accessible from the Wasatch Front and has a state park that is open year round. It is one of six reservoirs built by the Bureau of Reclamation in

the Weber watershed to provide subsidized water to the northern Wasatch Front. It impounds spring runoff from the western Uintas, storing it for use throughout the year.

Rockport Lake is the first of two large Bureau of Reclamation impoundments on the Weber River. The reservoir is an impoundment of a valley, which displaced agricultural land and a small community.

Rockport Lake was created in 1957 by the construction of an earth-fill dam. The reservoir shoreline

Characteristics and Morphometry

Lake elevation (meters / feet)	1,840 / 6,038
Surface area (hectares / acres)	481.2 / 1,189
Watershed area (hectares / acres)	82,800 / 205,000
Volume (m ³ / acre-feet)	
capacity	93,410,000 / 75,730
conservation pool	0
Annual inflow (m ³ / acre-feet)	
Retention time (years)	
Drawdown (meters / feet)	
Depth (meters / feet)	
maximum	45.7 / 150
mean	19.4 / 63.7
Length (meters / feet)	4,998 / 16,368
Width (meters / feet)	1,219 / 4,000
Shoreline (meters / feet)	11,300 / 37,065

Location

County	Summit
Longitude / Latitude	111 23 43 / 40 46 34
USGS Maps	Wanship, Utah , 1967
DeLorme's Utah Atlas & Gazetteer™	Page 54, 1-B
Cataloging Unit	Upper Weber 16020101

is owned entirely by the state of Utah. Public access is unrestricted, but fees are charged to use park facilities. The reservoir is named after the town of Rockport, which was inundated by the reservoir. Reservoir water is consumed for irrigation (75%) and culinary (25). Of the irrigation component much

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is used for residential irrigation needs, and is known as "Weber Water" by downstream users. As urban sprawl continues to displace farmland along the Wasatch Front and in communities along the Weber River, more water will probably be used for culinary purposes.

Recreation

Rockport Lake is located just south of I-80 at Wanship (Exit 156), 40 miles east of Salt Lake City. The dam is about 1.5 miles south of the junction. This road was once US-189, but UDOT has recently renumbered it as state highway U-32. It is also accessible from the Kamas area, to the south. The campground area is reached by driving to the south end of the reservoir, then returning north on the east shore on U-32. The route is well marked, paved, and open all winter. These two roads provide access to 85% of the shoreline.

The park receives moderate to heavy use. An example of the use of State Park facilities includes the following activities followed by 1990 user day data: cross-country skiing (148), fishing from bank or ice (22,670), boating (32,406), sailing and windsurfing (6,792), swimming (5,956), picnicking (20,176), snowmobiling (26), camping (33,870) and water skiing (12,704). Snowfall in 1990 was low, resulting in unusually little winter recreational use. The reservoir is very large, enabling it to handle heavy recreational use.

Recreational facilities at the reservoir include an improved boat ramp, 200 campsites, toilets, and a swimming area. Silver Sails, a concessionaire, offers boat rentals, recreational equipment and miscellaneous supplies.



There are services in Oakley and a private campground in Coalville.

Watershed Description

Although the terrain is mountainous, the elevation is relatively low, so the vegetation around the reservoir is mostly sagebrush and grass. Although the commute from Kamas to Salt Lake City is 45, the rural setting and clean air is rapidly transforming the area into suburbia. This is resulting in much-increased nutrient inputs from sewage and lawn fertilizers, but decreased nonpoint pollution from agriculture.

The watershed headwaters are the Weber River in the western Uintas. The Provo River once flowed through Rhodes Valley and down the Weber, but in fairly recent prehistoric times it was captured by its present drainage. Man has diverted part of the Weber River from one mile east of Oakley south across Rhodes Valley and down the Provo River.

The source of the Weber River lies just west of U-150 at Pass Lake. This is the divide between the Duchesne River and The Weber River. There is no perceptible boundary between the watersheds—the area was leveled by glaciers, possibly reversing their flow as snow deposition patterns changed. The glaciers left behind dozens of naturally impounded lakes. While none of the watershed is included in the High Uintas Wilderness Area, high elevations have precluded most use of this land by humans, and it remains fairly pristine.

Two major tributaries enter the Weber River above Rockport Lake. The first is Smith and Morehouse Creek, which enters midway between the headwaters and Rhodes Valley. Smith and Morehouse Reservoir is a large impoundment of this stream, and the only significant impoundment anywhere in the watershed. Beaver Creek is a tributary to the Weber River, flowing out of the Uintas into Kamas, then north to join the Weber just south of Peoa.

The watershed high point, Bald Mountain, is 3,640 m (11,943 ft) above sea level, thereby developing a complex slope of 4.5% to the reservoir. The average stream gradient above the reservoir is 2.3% (122 feet per mile). The inflows are the Weber River, Lost Creek, Threemile Canyon Creek, Kent Canyon Creek, Pine Creek, Crandall Canyon Creek, and an unnamed creek at the state campground. The creeks may dry up during the summer.

The watershed is made up of high mountains, low mountains and valleys. The soil associations that compose the watershed are listed in Appendix III.

The vegetation communities consist of alpine, aspen, pine, spruce-fir, oak-maple, and sagebrush-grass. The watershed receives 41 - 102 cm (16 - 40 inches) of precipitation annually. The frost-free season around the reservoir is 60 - 100 days per year.

Land use statistics are not available, but most of the watershed is managed as multiple use by the Wasatch-Cache National Forest, or maintained as private grazing

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lands. Rhodes Valley is mostly irrigated agriculture, but is expected to become more urban in the next 20 years.

Limnological Assessment

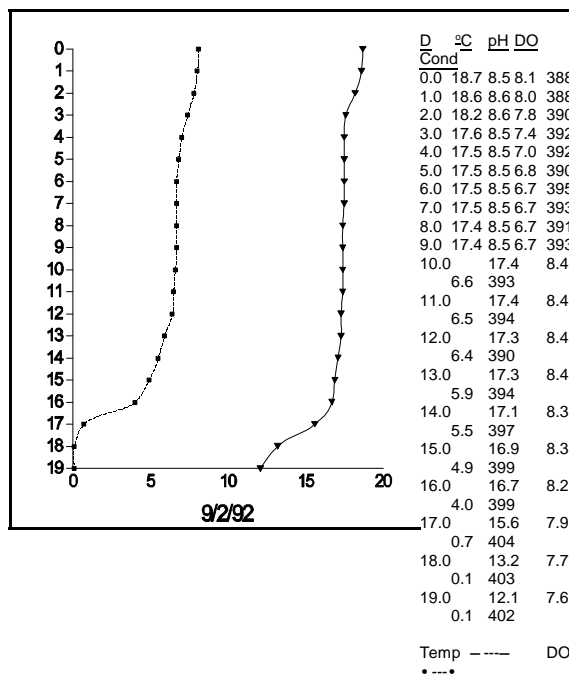
The water quality of Rockport Reservoir is very good. It is considered to be moderately hard with a hardness concentration value of approximately 181 mg/L (CaCO₃). Those parameters that have exceeded State water quality standards for defined beneficial uses are total phosphorus and dissolved oxygen. The average concentrations of total phosphorus in the water column for 1990-92 were 30 and 36 ug/L which exceed the recommended pollution indicator for phosphorus of 25 ug/L. It is interesting to note that the concentration of total phosphorus in the hypolimnion dramatically rises as the reservoir develops anoxic conditions late in the season. On September 2, 1992, it reached a level of 309 ug/L.

Limnological Data			
Data averaged from STORET sites: 592331, 592332			
Surface Data	1981	1990	1992
Trophic Status	M	M	M
Chlorophyll TSI	-	42.67	48.13
Secchi Depth TSI	50.00	45.78	44.05
Phosphorous TSI	47.34	43.20	36.76
Average TSI	48.70	43.80	42.98
Chlorophyll <i>a</i> (ug/L)	-	3.45	6.3
Transparency (m)	2.0-	2.7	3.03
Total Phosphorous (ug/L)	18	15	10
pH	8.4	7.8	8.48
Total Susp. Solids (mg/L)	-	3	<3
Total Volatile Solids (mg/L)	-	-	-
Total Residual Solids (mg/L)	-	-	3
Temperature (°C / °f)	12/54	18/65	18/65
Conductivity (umhos.cm)	199	314	369
Water Column Data			
Ammonia (mg/L)	0.07	0.04	0.06
Nitrate/Nitrite (mg/L)	0.19	-	0.02
Hardness (mg/L)	104	175	187
Alkalinity (mg/L)	98	163	178
Silica (mg/L)	6.3	-	6.95
Total Phosphorus (ug/L)	-	30	36
Miscellaneous Data			
Limiting Nutrient	P	N	N
DO (Mg/l) at 75% depth	8.1	5.1	5.4
Stratification (m)	NO	NO	16
Depth at Deepest Site (m)	33	32	19

Although not indicated in the September 2, 1992 profile, the reservoir does stratify when sufficient depth is present. The profile also shows the anoxic conditions near the bottom of the reservoir. It appears that if these conditions were to intensify and be present for longer

periods of time they could have more detrimental effects upon the reservoir water quality. It appears that the internal phosphorus loading from the sediments could become fairly substantial leading to greater productivity and eutrophication.

Although the reservoir was classified as a phosphorus limited system in 1981, the 1990-92 data suggest that the reservoir is currently a nitrogen limited system. TSI values indicate the reservoir is mesotrophic. The phosphorus concentrations throughout the water column are moderately low. Because the system is nitrogen limited the phytoplankton community appears to be dominated by species that are capable of fixing nitrogen for their needs. According to DWR no fish kills have been reported in recent years. The reservoir is stocked each year with rainbow trout (*Oncorhynchus mykiss*). The management strategy has been to stock with approximately 100-200,000 fingerling trout, however in recent years DWR has stock some subcatchables and even catchables. In addition from 1985 through 1987 30,000 smallmouth bass (*Micropterus dolomieu*) fingerlings were stocked which appear to be reproducing



in the reservoir.

The reservoir has not been chemically treated by the DWR to eliminate rough fish competition, so populations of native fish may be present.

Phytoplankton in the euphotic zone include the following taxa (in order of dominance)

Species	Cell Volume (mm ³ /liter)	% Density By Volume
<i>Aphanizomenon flos-aquae</i>		8 . 5 5 7
60.61		
<i>Anabaena spiroides</i>		
var. <i>crassa</i>	2.891	20.48
<i>Stephanodiscus niagarae</i>		1 . 2 3 2
8.73		
<i>Anabaena sp.</i>	1.112	7.88
<i>Trachelomonas sp.</i>	.133	0.95
<i>Ankyra judayi</i>	.052	0.37
<i>Ankistrodesmus falcatus</i>	.052	0.37
Pennate diatoms	.022	0.16
Centric diatoms	.018	0.13
<i>Wislouchiella planktonica</i>		. 0 1 6
0.11		
<i>Dinobryon divergens</i>	.012	0.09
<i>Crucigenia rectangularis</i>	.011	0.08
<i>Oocystis sp.</i>	.009	0.06
Total	2.970	
Shannon-Weaver [H']	1.17	
Species Evenness	0.46	
Species Richness [d]	0.51	

The phytoplankton community is dominated by the presence of blue-green algae species. This is probably due to nitrogen limitation.

Pollution Assessment

Nonpoint pollution sources include the following: sedimentation and nutrient loading from grazing; wastes or chemicals and nutrients from urban areas; herbicides and nutrients from croplands; recreation; leachates from mines and sedimentation from logging.

In addition, there are other abandoned mine sites in the watershed, which may not have been reclaimed upon abandonment. These sites can have large piles of tailings and due to a lack of vegetated cover can produce

pollutants from as water leaches through them and is transported into waterways.

Point sources of pollution in the watershed also include municipal wastewater treatment lagoons at Oakley and Kamas, the Kamas Fish Hatchery and two active mines in the watershed. Bear Hole Gold Mines are in the South Fork drainage, just north of Hoyt Peak in section 29 and Utelite, a clay/shale mine immediately upstream from the reservoir in Threemile Canyon.

Beneficial Use Classification

The state beneficial use classifications include: culinary water (1A), recreational bathing (swimming) (2A), boating and similar recreation (excluding swimming) (2B), cold water game fish and organisms in their food chain (3A) and agricultural uses (4).

Information

Management Agencies

Mountainlands Association of Governments	377-2262
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146

Recreation

Mountainland Travel Region (Provo)	377-2262
Rockport Lake State Park	336-2241

Reservoir Administrators

Department of the Interior	524-5436
Central Utah Water Conservancy District	226-7100